

Atmospheric Correction Group Summary

- There are no obvious reasons to change the Shettle & Fenn aerosol models which are used for the non- and weakly absorbing aerosols for the ocean color measurements.
 - We are neither defending nor criticizing the Shettle & Fenn models.
 - The Angstrom exponent derived from satellite (e.g., SeaWiFS) are biased low comparing with the in situ measurements.
- We need to focus our works on the resolving the absorbing aerosol cases:
 - The spectral matching algorithms (Gordon et al.) work reasonably well.
 - Other approaches need to be explored and tested, e.g., first to identify the present of the absorbing aerosols and then using the absorbing aerosol tables for the retrievals.
 - Need to develop and explore the effective way to identify the absorbing aerosols.
 - More studies are needed in comparing satellite retrieved aerosol optical properties with the in situ measurements, in particularly, for the absorbing aerosols, e.g., dust.
- We all agreed that the vicarious calibration is necessary for the ocean color sensors.
 - SeaWiFS, MODIS, MERIS, GLI, and POLDER used (or will apply) the similar vicarious calibration method using the ocean in situ data.

Atmospheric Correction Group Summary (cont.)

- The quality of the vicarious calibration depends on the quality of the in situ data. Therefore, it is very important to maintain a good in situ measurement site such as the MOBY.
- The results of the vicarious calibration (gain factors) depends also on the solar irradiances, atmospheric correction algorithm, and the lookup tables. The ocean color results are independent of the solar irradiance data (after vicarious calibration). However, it may be useful to use a consistent solar irradiance data from various ocean color projects.
- Reduce the SeaWiFS band 8 gain (~5%) has little (or no) effects on the ocean color products. Slightly overestimation of the SeaWiFS aerosol optical thickness in comparing with the in situ measurements could be possibly from reasons other than calibration, e.g., surface wind speed, polarization effects, etc.
- Activity of the IOCCG atmospheric correction working group is important for the data merge and for quantifying the performance of the various existing atmospheric correction algorithms. It should get fully supported from various agencies.
- B. Fougnie showed a sample study that NO_2 gas absorption has ~0.35% and ~0.20% effects on the 443 and 490 nm TOA radiances, respectively.